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Patent Application of

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For

Stripping Tool for Removing Coatings from Two Surfaces Simultaneously

BACKGROUND AND OBJECTS OF THE INVENTION

There are many methods for stripping paint and other coatings from wood, fiberglass, steel, and resin surfaces, such as heat, chemicals and various tools. Electric heat plates and open flames are dangerous and could cause fires. Additionally, where lead paint or pressure treated lumber is involved, heavy metals can be released into the environment and health risks ensue. Chemicals are time consuming and expensive, requiring neutralization of the stripped surface. Another method, such as abrasive sheets (sandpaper), uses friction and abrasion of hard particulate matter against the coating to be removed. Such removal method causes clogging of the sandpaper, down time, and sandpaper replacement at a considerable cost. Other methods used are manual wire brushing and manual scraping; both are labor intensive and can cause damage to the wood, fiberglass, steel, and resin surfaces.

The arrangement of the present invention seeks to allow the operator to resurface into confined areas of a work surface, such as the butt ends of shingles and clapboards, and into side areas around door and window trim, while simultaneously working two surfaces and removing resurfacing debris.

There are many prior art rotary resurfacing tools on the market, but they are cumbersome to handle and are unable to clean coatings from corner areas next to windows or doorframes. Some examples are discussed below.

U.S. Pat. No. 4,544,957, issued to Zayat, describes a rotary resurfacing tool capable of simultaneously resurfacing two surfaces with a rotary disc. The tool is designed to simultaneously remove a coating from the horizontal surface of a clapboard and the underside butt end of the adjacent clapboard.

U.S. Pat. No. 5,609,516, issued to Courson, describes a power tool with abrasive sheets enclosed by a circular shroud covering. The shroud covers the abrasive sheets, allowing the collection of dust by a vacuum system.

U.S. Pat. No.5,791,979 issued to Duncan describes a vacuum shroud covering a grinding tool. The flexible bonnet surrounding the grinding disc allows for the collection of stripped debris into a vacuum.

U.S. Pat. No. 6,027,399, issued to Stewart, describes a grinding tool accessory shroud for containing and removing dust into a vacuum. The accessory has flexible bristles with two chambers, the inner chamber collects the dust and the outer chamber flexes for contoured portions of a work surface.

U.S. Pat. No. 4,765,099, issued to Tanner, describes a sanding and dust collecting apparatus that consists of a flexible curtain for containment of dust around a sanding disc.

U.S. Pat. No. 6,148,880, issued to Dehde et al., describes a flat surface-milling machine with two or more cutters, but no dust removal system and it can only grind one surface at a time.

U.S. Pat. Nos. 4,337,811; 3,731,338; and 6,190,099, issued to Partington, Walsh and Schultze, respectively, all describe circular rotary planers or grinders with no ability to simultaneously grind two surfaces and no dust removal system.

U.S. Pat. No. 6,491,575, issued to Sarantis, describes a rotary tool with replaceable blades that can resurface two surfaces simultaneously, a semi rigid guard and it does have a dust collection system. The cutting depth of the horizontal work surface is set by ball bearings and the dust collection system is a shroud surrounding the entire work surface. This differs from the invention in this application in that the vacuum/dust collection system is part of the rigid guard housing and because of this design, the operator is able to get closer into corners, the tool is less cumbersome and reduces operator fatigue.

The rotary stripping tool of this invention is designed to meet several objectives. The rigid guard housing/dust collector combines the function of two separate parts on other tools. The bottom of the rigid guard housing/dust collector is set at a slight offset angle of ten degrees. This and the height adjustment screw allow the operator to set the optimal cutting depth for the horizontal surface. Likewise, the side adjustment screw seated on the rigid guard housing/dust collector maximizes space utilization on the tool.

Finally, using only two blades on the bar style holder, weight and drag are minimized allowing a smaller, lighter motor to be used with the tool.

In short, the weight reduction in this tool, the ability to reach farther into tight corners and the ability to simultaneously work two surfaces reduces operator fatigue and accomplishes more stripping than other devices.

SUMMARY OF THE INVENTION

The present invention provides a means of stripping and removing paint and debris from shingles or clapboard. While other devices claim to do the same, this invention is a clear improvement over those devices in that it easily fits into corners, presents a smaller head area to the surface and contains less moving parts so as to improve its movement and to reduce operator fatigue.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is an exploded side view of the resurfacing tool of the invention showing the novel rigid guard housing/dust collector, bar style holder and motor drive.

Figure 2 is a side elevation view of an assembled tool showing the adjustment screws for controlling the stripping action of the tool.

Figure 3 is an underside view of the tool showing the details of the bar style blade holder inside the rigid guard housing/ dust collector with the bar style blade holder positioned so

that the tool of the invention can strip vertically adjacent surfaces and into corners. Adjustment screw head 33 is seen to be-located next to the top opening of the rigid guard housing/dust collector.

Figure 3A is a view showing the top opening of the rigid guard/dust collector through which the cutter blades extend for resurfacing the butt end of shingles or clapboard.

Figure 4 is a top perspective view of the stripping tool in operation removing a coating from the surface of shingles.

Figure 5 is a top perspective view similar to Figure 4 showing the stripping tool in operation removing a coating on a main/horizontal surface which abuts a window or doorframe on the right side of the operator.

Figure 6 shows the resurfacing tool of the invention stripping the surface of clapboard up to a window or doorframe located to the left side of the operator.

DETAILED DESCRIPTION OF THE INVENTION

The invention will now be described in detail with reference to the drawings. In general, the resurfacing tool 2 of the present invention is designed to be hand-held and placed against wood shingles or clapboard siding surfaces of a house, or fiberglass or metal surfaces.

Figure 1 is an exploded side view of the tool 2, which comprises an electric drive motor 6 with a 90-degree angled drive shaft 8 connected to a bar style blade holder 10 with two replaceable blades 12. A base plate 18 is attached to the motor drive 6 with two long screws 24 and two short screws 24a with four bushings 16 of equal size and a spacer washer 28. With the two long screws 24, two more bushings 16a are used as spacers for attaching the top wall 4a of the rigid guard housing/dust collector 4. The top wall 4a of the rigid guard housing/dust collector has a vacuum hose attachment 7. The top of the rigid guard housing/dust collector is attached by means of four screws, not shown, to the rigid guard housing/dust collector 4. The rigid guard housing/dust collector has both a top opening and a bottom opening, Fig. 3. A horizontal adjustment screw 14 allows the operator to adjust the depth of the blades to the horizontal surface of the surface to be resurfaced.

The horizontal adjustment screw 14 and the lock nut 20 and their relation to the base plate 18 and the rigid guard housing/dust collector 4 are best seen in Figures 1- 3 and 3a. When the horizontal adjustment screw 14 is turned, the side of the rigid guard housing/dust collector will move up and down with respect to the fixed base plate 18 and the bar style blade holder inside the rigid guard/dust-collector 4, thereby controlling the protrusion of the blades 12 below the rigid guard housing 4.

Figure 3 is a view looking up into the bottom opening of the rigid guard housing/dust collector 4. The heads of the base plate mounting screws 24 are visible and the horizontal adjustment screw 14 on the opposite side is visible. The bar style blade holder

10 with its angled slots for the replaceable blades 12 is also displayed. The angled slots hold the blades in such a way that little of the blade point touches the horizontal surface to be treated. This reduces drag and effort on the part of the operator. The side adjustment screw 33 is also visible and this adjusts the amount of blade surface touching the butt end of a shingle or clapboard being resurfaced. The cut-away view shows the plenum chamber in the rigid guard dust collector leading to the vacuum attachment

Figure 3A is the view of the top opening of the rigid guard housing/dust collector. Visible is the bar style blade holder 10 with the angled replaceable blade 12. The side adjustment screw 33 and the height adjustment screw located inside the lock nut 20 are visible in this view. The top opening has a carriage bolt adjustment screw 33 adjacent to it to allow the operator to adjust the depth of the side edges of the replaceable blades 12 allowed to contact the butt end of a clapboard or shingle for resurfacing. The bottom of the rigid guard housing/dust collector has a ten-degree slope from the side of the side adjustment screw angling up to the opposite side. This allows the tips of the replaceable blades 12 in the bar style blade holder 10 to protrude from the circular opening for 180 degrees of arc. This ten-degree angle and a horizontal line 44 is displayed to give a reference point for the ten degree sloped bottom of the rigid guard housing/dust collector 4. An arc with arrows is also displayed to show the rotation of the rigid guard housing/dust collector 4 in relation to the height adjustment screw 14 and the replaceable blades 12.

Figure 4 is a view of the device in operation removing coating 16 from the surface 22 of a course of shingles or clapboard. The rigid guard housing/dust collector 4 is placed on the top of a course of shingles or clapboard with the open side of the rigid guard housing/dust collector 4 placed against the short butt end 34 of the overlying shingle or clapboard. The side adjustment screw 33 is also placed against the overlying butt end so that the two surfaces 22 and 34 can be worked simultaneously and the resulting debris can be removed.

Figure 5 shows the tool 2 of the present invention in use removing the coating 16 on surface 22 with a window or door trim 30 located to the right of the tool.

Figure 6 shows the tool of the present invention in use removing coating 16 from surface 22 with trim 30 located to the left of the tool. Note that the side opening of the rigid guard housing/dust collector is next to the trim.

While there is shown and described herein certain specific structures embodying the invention, it will be obvious to those skilled in the art that various modifications and rearrangements of the parts may be made without departing from the spirit and scope of the underlying inventive concept and that the same is not limited to the particular forms herein shown and described except insofar as indicated by the scope of the appended claims.

ABSTRACT

A tool for simultaneously resurfacing by cutting the face and overlying butt portions of shingles or clapboards forming the outside surface of a house or the like. The tool is mounted in a rigid guard housing/dust collector that allows for adjustment of the cutting blades to both surfaces and provides an attachment for work debris removal.